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Camponogara, Silviamar; Rodrigues, Isis de Lima; Dias, Gisele Loise; Moura, Lenize Nunes; Viero, Cibelle Mello; Miorin, Jeanini Dalcol

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Implicações do uso de agrotóxicos: percepções de familiares de crianças portadoras de neoplasia

Implications of pesticide use: perceptions of families of children with cancer

Implicaciones del uso de plaguicidas: percepciones de las familias de niños con cáncer

Silviamar Camponogara¹; Isis de Lima Rodrigues²; Gisele Loise Dias³; Lenize Nunes Moura⁴; Cibelle Mello Viero⁵; Jeanini Dalcol Miorin⁶

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ABSTRACT

Objective: To know the perceptions of family members of children with neoplasia who work as rural workers about the disease process and the implications of the use of pesticides. **Method:** Data were collected through structured interviews guided by a sociodemographic form and semi-structured interviews during the months of October 2014 to January 2015. Transcripts results were analyzed based on the proposed framework for thematic analysis. **Results:** The results emerged from two thematic categories entitled Perceptions of family outside the child's disease process and Perceptions of family against the use of pesticides. **Conclusion:** It is believed that the inclusion of the discussion on the issue of pesticides in rural activity allows new perspectives, aiming to minimize the environmental crisis, the disease process and expand the understanding of the health-disease process as a result also of integration human beings and the environment.

Descriptors: Agrochemicals, Neoplasms, Agriculture, Nursing.

¹ Nurse. PhD in Nursing. Teacher in the nursing course and PPGEnf/UFSM. Federal University of Santa Maria.

² Academic Nursing at the Federal University of Santa Maria. Project Scholarship.

³ Nurse. Specialist in Management of the Public Health Organization. Masters Student of the Graduate Program in Nursing of the Federal University of Santa Maria (PPGENF/UFSM).

⁴ Nurse. Formed by the Franciscan University Center. Postgraduate in Nursing Intensive Care and Adult Emergency.

⁵ Nurse. Master's Degree Program in Nursing, Federal University of Santa Maria (PPGENF/UFSM).

⁶ Nurse by Federal University of Santa Maria. Resident in Nursing Urgency and Trauma by the Franciscan University Center.

RESUMO

Objetivo: Conhecer as percepções de familiares de crianças portadoras de neoplasia atuantes como trabalhadores rurais acerca do processo de adoecimento e implicações do uso de agrotóxicos. **Método:** Os dados foram coletados por meio de entrevista dirigida orientada por um formulário sociodemográfico e entrevista semi-estruturada, durante os meses de outubro de 2014 a janeiro de 2015. Os resultados transcritos foram analisados com base no referencial proposto para análise temática.

Resultados: Dos resultados emergiram duas categorias temáticas intituladas Percepções de familiares frente ao processo de adoecimento da criança e Percepções de familiares frente ao uso de agrotóxicos.

Conclusão: Acredita-se que a inserção da discussão sobre a problemática dos agrotóxicos na atividade rural possibilita novos olhares, visando a minimizar a crise ambiental, o processo de adoecimento e ampliar o entendimento do processo de saúde-doença como resultante, também, da integração do ser humano com o meio ambiente.

Descritores: Agrotóxicos, Neoplasias, Agricultores, Enfermagem.

RESUMEN

Objetivo: Conocer las percepciones de los miembros de la familia de los niños con cáncer actuando como trabajadores rurales sobre el proceso de la enfermedad y las implicaciones del uso de plaguicidas. **Método:** Los datos fueron recolectados a través de entrevistas estructuradas guiadas por una forma sociodemográfica y entrevistas semiestructuradas durante los meses de octubre de 2014 y enero de 2015. Los resultados transcritos se analizaron con base en el referencial propuesto para el análisis temático.

Resultados: De los resultados surgieron dos categorías temáticas tituladas Las percepciones de la familia fuera de proceso de la enfermedad del niño y Las percepciones de la familia contra el uso de pesticidas. **Conclusión:** Se cree que la inclusión de la discusión sobre el tema de los pesticidas en la actividad rural permite nuevas perspectivas, con el objetivo de minimizar la crisis ambiental, el proceso de la enfermedad y ampliar la comprensión del proceso salud-enfermedad como consecuencia también de la integración los seres humanos y el medio ambiente.

Descriptores: Plaguicidas, Neoplasias, Agricultores, Enfermería.

INTRODUCTION

The use of pesticides is a topic that has been attracting attention, considering its consequences for human health and the environment, caused by its increasing and often inadequate use. In this scenario, Brazil is currently the largest consumer of agrochemicals in the world,¹ this is due, in particular, to the agroexport model adopted by the Brazilian economy.^{2,1}

The intensive use of agrochemicals generates diverse social, environmental and health impacts which are not incorporated by the productive chain, highlighting the occurrence of diseases and deaths that could be avoided, among them cancer.³ This is because pesticides can be found in many environments, such as: workplaces, homes, schools, food and the community in general. They are present in the waters, leisure areas, in the air, which exposes the human being to direct contact with these substances, in various situations.⁴

Agrochemicals are chemicals used to control insects, weeds, fungi and other pests,⁵ generating a number of harmful effects on human health. Although their effects on agriculture are well known, their potential adverse effects on human health remain under investigation,⁶ since the active components of each chemical may have different carcinogenic or mutagenic properties.⁵ Chronic effects may occur months, years or even decades after exposure, manifesting in the form of various diseases such as: cancers, congenital malformations, endocrine, neurological and mental disorders.¹

The exposure of rural workers to pesticides constitutes a serious public health problem, considering that they are the first to be penalized because they are chronically exposed to these dangerous products. The personal factor is also added, since sometimes the farmer is distressed because he is dealing with a product that he does not know, together with the improper handling of the product, generating a risk exposure and increasing the chance of contamination of the farmer.¹

Among the results of the contamination of workers caused by pesticides are the effects associated with chronic exposure to active ingredients of pesticides, such as: infertility, impotence, abortions, malformations, neurotoxicity, hormonal dysregulation, effects on the immune system and cancer.⁷ It corroborates with this data the current situation in Brazil, where cancer has been gaining relevance due to the epidemiological profile, implying a challenge to health professionals and health services. It is necessary to know about the situation of this disease and its risk factors, in order to establish priorities and allocate resources in a way directed to the positive modification of this scenario in the Brazilian population.⁸

To elucidate, in Brazil, the most common type of childhood and juvenile cancer in most populations is leukemia (about 25% to 35%), followed by lymphomas. Against this, the environment in which children grow up is directly related to possible diseases in the future. Childhood is a critical period of development because, in addition to the formation of life habits, exposure to environmental factors may be determinant for the development of childhood cancer, unlike adults.⁸ It is known, today, that several chronic diseases have their origin in the beginning of life, as for example, cancer.⁸

Considering these aspects, it can be said that society as a whole needs to mobilize to face the situation regarding the harmful effects brought about by the use of agrochemicals and seek out ways to reduce these consequences, especially among rural workers and family members living in rural areas. The presence of children among family members can be considered a prominent factor in this case, since there may be significant implications for children's health due to exposure to chemical agents from pesticides. This, of course, requires a careful and attentive look on the part of the family members themselves and of the professionals of the health, among them, the nurses.

In this perspective, the research problem of this research is: What is the perception of family members of children with neoplasia, acting as rural workers, about the process of illness and the implications of the use of pesticides? The objective of this study was to understand the perceptions of family members of children with neoplasia who work as rural workers about the disease process, as well as the implications of pesticides use.

METHODS

This is a descriptive study, with a qualitative approach, which is the most adequate to analyze questions related to subjective phenomena.⁹ The research was carried out with family members of children with cancer undergoing treatment in a tertiary-level hospital, located in the interior of the state of RS, reference in the region for the treatment of medium and high complexity. Therefore, the study was carried out in the sectors where there is pediatric cancer care.

The family members of children with cancer in oncological treatment in the referred hospital were constituted in research participants. Family members who had a direct link with the child and the rural work, and who were in a psychic condition to participate in the study, being a father, mother or legal guardian, over 18 years old were included. Thus, only those participants who met the inclusion criteria and who agreed to voluntarily participate in the study were interviewed, after accepting and signing the Informed Consent Term.

Data were collected through semi-structured interviews, which were recorded and transcribed during the months of October 2014 and January 2015, and analyzed based on the assumptions of content analysis of the thematic modality.⁹ Closing of the data collection occurred in the face of data saturation, which, in the present study, corresponded to ten interviews. The data collection instrument was anchored in guiding questions about the repercussions of children's illness in the family context and also on the recognition of the use and implications of the use of pesticides.

The research project was approved by the Institution's Ethics and Research Committee, under the number CAAE 33983414.2.0000.5346. It is also worth noting that the study followed all the recommendations of Resolution 466/2012 of the National Health Council.¹¹ In order to guarantee the confidentiality and anonymity of the participants, these were identified by the letter F (familiar), followed by a number, corresponding to the order of the interview.

RESULTS AND DISCUSSION

A brief characterization of the participants indicates that 100% of the participants were female, with ages varying between 22 years and 47 years and average age of 35 years old. In addition, all participants in this study were mothers of children undergoing treatment at the research site.

All participants had a direct link to rural work, and 60% said they were housewives, 30% farmers and 10% economists. Regarding the marital situation, 10% reported being single, 50% married, 20% lived with their partner or maintained a stable union. When asked about the number of inhabitants per residence, this varied between 3 and 8 people. The family income varied between R\$ 750.00 and R\$ 2,200.00.

In relation to the use of agrochemicals, those mentioned were the secant and glyphosate. It is estimated that the sale of glyphosate formulated in Brazil currently reaches the mark of 250 million liters per year.¹ As for the forms of application of these products the manual and mechanic use through the use of the tractor stood out.

30% reported using the mask only, 20% stated that the work was done manually, without PPE, 20% used some PPE, 20% did not know how to use it, and 10% only used gloves and masks. All interviewees stated that the packaging of agrochemicals is not reused for other purposes.

After the analysis of the interviews, two categories emerged: Perceptions of family members in relation to the process of illness of the child and Perceptions of family members in relation to the use of pesticides, both of which will be presented below.

Perceptions of family members regarding the process of illness of the child

This category refers to the perceptions of the relatives of children with neoplasias in the face of the illness process and its consequences. In this sense, several aspects were mentioned by the participants, among them what is related to the moment of diagnosis and the associated feelings. It is understood that each family has its own characteristics to carry out the confrontation and the discovery of cancer.¹²

In general, there was a perception of lack of credibility in the diagnosis, and this was unexpected because, in the testimonies, relatives revealed that childhood cancer was described as something unexpected and far from reality:

"[...] We sleep, at night we wake up and think it's a dream, a nightmare. Because we do not believe it because it has never happened before in the family, we never expected it." (F1)

"[...] It's sad for us ... people's lives have changed because we saw them, things on television, like this. We think it will not happen to us." (F8)

"[...] Oh... I never imagined that it was this disease. Never, never... I was very calm... I thought it was a normal exam." (F6)

In front of the testimonies, it is noticed that, at the moment of the diagnosis, the feelings that surround the relatives' treat

of a radical strangeness and of impotence.¹³ This is because diagnosis and treatment have an impact on the life of the patient and his family, forcing them to adapt to a new reality when they enter another world, that of the hospital, which consists of different elements of everyday life.¹²

Another aspect mentioned is related to suffering and acceptance in the face of illness. In this case, the deponents mentioned how they feel about the illness of the child, about the suffering experienced, as well as the strategies adopted for readaptation of family daily life, and in this way, faith has shown itself as an ally in this process.

"[...] For us it was... the same as opening a hole and you have nowhere to grab and you have to fall into that hole, you know? Everyone went crazy." (F5)

"[...] The world fell, it fell upon us. No, it is not easy. But you have to face it hard. It is not easy... even his treatment is going well, thank God, as given, we have to accept." (F4)

In front of the reports, the reactions of the relatives and the suffering generated by the diagnosis are perceived. Among the most common reactions are shock and fear. However, authors mention the tension that is reflected in the whole family.¹⁴⁻¹⁵ Thus, families develop strategies for coping with diagnosis, treatment and family restructuring and these strategies include faith, which helps patients and their families to react with hope in the diagnosis and acceptance of treatment.¹⁵

In addition, trust in the treatment, together with the hope and support that family members and children in the hospital environment, are points that help in the better acceptance of the child's condition.¹⁶

In this sense, after the impact of diagnosis and treatment, the deponents manifest a degree of acceptance, seeking to establish a slightly more positive view of the moment experienced, although there remain ambiguous feelings of hope and fear. The following testimonies reveal this perception:

"[...] We're always like this ... scared, you know? We believe that it will work. At the same time we are afraid because here [in the hospital] we see a lot of good and a lot of bad things too." (F5)

"[...] the treatment is working well. We meet new people too... make new friends... see how the treatment works... take [the child] to other places too, talk about how it is." (F7)

The speeches refer to feelings of fear, uncertainty, distress, anguish and hope. The testimonies corroborate with the findings of the literature, in which the feelings of fear, anxiety,

insecurity, despair, fear, among others were evidenced.¹⁷⁻¹⁸ These feelings reflect the fear that the parents experience of losing the child, in front of the stress of the disease, plus the meaning that they have for the hospital and everything that the child needs.¹²

In view of the above, the participants also point out that the process of illness has had several implications in the family routine. This is associated with the fact that the effects of hospitalization transcend the disease and end up altering the daily life and family structure.¹² There was a greater emphasis on the care of other children and changes in the daily work life of the family, especially in what refers to family support activities, as is verified in the following statements:

"[...] Now the poor man [the interviewee's husband] is turning around... taking care of the garden because... it's a little big. If you see us both poor, sometimes I come and help, but I do not have time anymore." (F1)

"[...] We come here [hospital]... we, thank God, have all the help here. It is pretty hard. Every Wednesday. I still get home and have to work on the other [children]. I have four in school. It's very complicated!" (F6)

"[...] My husband, he planted everything, everything, everything in the garden. Only now he's not going to plant anything anymore, even because of him [son in treatment]. We will not plant anything else. After his [son's] illness, we've dropped everything." (F6)

"[...] Because we live out [in the countryside] someone has to work. Then he stays [the husband], does the service at home, because we have another [son]." (F9)

"[...] We took care of the animals, had a cow. One did one thing, another did another; we stopped there with everything, no more time." (F8)

It can be seen from the above reports the implications of cancer in family daily life, especially altering the dynamics of family support. In most cases, while one family member accompanies the child, the other develops some family activities alone. This fact is also related to the need for care on the part of the child in treatment, since the parents, in the majority of the times, feel obliged to stay all the time on the side of the child, without leaving, not even to feed.¹²

In some cases, there is also the financial impact, since the deponents practice family farming, and there are no conditions to maintain the cultivation, since at least one parent needs to accompany the child in treatment, these factors being associated with the treatment.¹⁹

In addition, families, having their daily routine modified, experience great suffering and anguish, generated by limited coexistence with other family members.²⁰ This is because first the priority is to take care of the child and second to meet the other members of the family.¹⁹ This situation can trigger a stressful process in the caregiver of this child due to the routine of care and the limited coexistence with the other relatives.¹⁸

Perception of family members regarding the use of pesticides

In this category, participants mention that pesticides are a necessary evil in rural areas, as well as addressing their understanding of pesticides as causes of harm.

During the interviews, the participants showed the idea of agrochemicals with a necessary evil, since they consider it of paramount importance for agricultural production, even though they understand that it causes harm. These ideas are present in the following statements:

"[...] I know it's not good ... That's where these things start to appear. It has to have, have to use." (F8)

"[...] Look, we know that maybe it's not the right thing to do. But it's the only way you have to control these weeds, these things, pests. If we had another option, we would not." (F9)

It can be noticed that when the interviewees were questioned about the risks arising from the use of pesticides, they stated that they know that pesticides cause health damage, but explain that these products need to be used in the plantations, in order not to cause a loss in production .

The indiscriminate use of pesticides endangers the health of producers, consumers and even the environment.²¹ Added to this is the growing demand for vegetables, fruits and grains that encourage farmers to use a wide variety of products to increase productivity and reduce crop loss.

This study highlights the high use of insecticides, which, coupled with the lack of adequate use of PPE by agricultural workers with low levels of schooling, shows an inadequate use of pesticides by farmers in the state of Rio Grande do Sul, showing the high toxicity of the most frequently used pesticides.²² Therefore, the participants emphasize their perception that pesticides are associated with acute intoxication and the onset of diseases. These perceptions were manifested in several moments, as shown below:

"[...] I think it's really bad... because we do not use it, but I think it's horrible because they go through it. On our side there is a farm, when they pass it [the pesticide] comes such a strong smell." (F1)

"[...] There are people close to home who plant soybeans, which is why the use of pesticides is greater, it gives headaches ... like these things like that, sometimes we have to go to the doctor." (F3)

In view of the testimonies, there is evidence of a relationship between the use of pesticides and the appearance of diseases. Still, in this perspective, in the following statement the participant reports that the use of pesticides is not good, and causes damages related to the health of their neighbors.

"[...] I think it's not very good because when the doctor said that maybe it could be from the poison that has in turn... There are neighbors who pass poison there... they have vomit. [Referring to neighbors] Later it causes other things [diseases]." (F2)

According to the previous testimony, it is evident that the deponent relates exposure to pesticides with the onset of symptoms of intoxication and other diseases. There is evidence in the literature that relates exposure to pesticides and the long term appearance of some types of malignant neoplasia, hormonal dysfunction, dysfunction of organs of excretion and purification such as kidneys and liver.²³

Acute intoxication is one in which symptoms appear rapidly, that is, a few hours after exposure to the poison, and are high doses of handling with the pesticide.²³ The definition of chronic intoxication is characterized by late onset of symptoms and difficult diagnosis, as the symptoms appear after months and years of exposure to toxic products. These can include anemia, insomnia, depression, reproductive effects, miscarriages, infertility, congenital malformations, muscle weakness, irritability, weight loss, respiratory diseases, which can also affect the development of the child and may include various types of cancer and paralysis.¹¹

In view of this, the statements that follow address the question of the most intensive use of these products nowadays, in counterpoint to times when they were less used. Participants also refer to ingestion of contaminated food.

"[...] I think, therefore, that it gives disease, because I do not know what we used to do, we hardly used those things. So there were less cancer than nowadays. I think, now I think like that, that we eat a lot that has a lot of poison." (F1)

"[...] I think it's in food, almost all have pesticides. And to be around too (of the crop). I think they are more in the food, it is fruits, vegetables, everything has pesticides." (F7)

In agreement with the reports, it can be observed that the perceptions of the relation of use of pesticides and the emergence of diseases are related to the ingestion of food

containing pesticides. Added to these perceptions is the fact that the rural or urban population that lives, works and feeds in environments with contact with these products is being contaminated directly or indirectly, at the risk of developing acute or chronic poisoning.²⁵

In this way, the relationship of the emergence of health problems with the use of pesticides has been investigated. Data from the literature show that workers have listed as health related problems skin changes, cancer, blood related problems and even headaches.²⁶ This fact is made explicit in the following statement.

"[...] What I think is because people get like that ... intoxicated with poison... Oh, I think so ... because there is also her uncle who has this disease and is close to the crop." (F10)

"[...] Ah, we can see because there are people who grow soy and rice near the house. They use pesticides, give headache, things like that. Sometimes you have to even go to the doctor. (F3)

In view of the above, it is noticed that there is an association on the part of the participant, exposure to pesticides and the appearance of some symptoms of intoxication. Study finds that pesticides compromise the health of consumers, residents and agricultural workers who remain exposed in places affected by waste or even by spraying.²⁷ In addition, the application of pesticides in agriculture has been demonstrated as a primarily male activity, however, this does not mean that farmers' families that spray pesticides are free from the risk of detoxification.¹¹ In this way, it can be inferred that the exposure to risks varies from farmer to farmer, due to the actions and strategies of each one against the hazards to which they are exposed.²⁸

The following statements demonstrate the perceptions of using strategies to reduce exposure to pesticides.

"[...] Look, I think the people are aware that they have to use the PPE, something like that if they can prevent it too." (F9)

"[...] This one [the child] does not go near there, because he [the husband] does not let it anymore." (F6)

"[...] I think it's too bad. Yeah, because we do not use it, but I think it's awful because they [the neighbors] pass by. On our side there is a farm, you know, when they pass it comes a smell so strong that it leads home, that I have to take the child from home, because you can not bear the smell. I think it's horrible, but then they'll tell you when they're going to do it, because they plant a lot." (F1)

It is evidenced that the practice and the exposure to pesticides allowed the appearance of frequent symptoms in the workers, with that, influenced changes observed in the practice of manipulation. It is also emphasized that the level of education of certain populations interfere in the understanding of the terms contained in pesticide labels.²⁹ Participants' perceptions corroborate with the findings of a study,³⁰ by showing that the pesticides registered in Brazil were classified as highly or extremely toxic to humans. In this context, it is reiterated that the repercussions on the health of rural workers and the surrounding community exposed to pesticides represent a public health problem.³¹ However, according to the following statements, the participants demonstrate uncertainty regarding the factors that triggered the onset of the disease in the child.

"[...] I believe it was not from pesticides ... because it is far from home. But I do not know." (F4)

"[...] One can not also say that it was not something like that. Because we live in a place that already has a lot of use of pesticides." (F9)

A study of newborns with congenital malformations and healthy newborns in eight municipalities in the state of Mato Grosso showed that maternal exposure to pesticides poses a higher risk of fetal malformation, since exposure in the period after fertilization and in the fetal period are associated with malformations. In this sense, it is highlighted the importance of monitoring the use of pesticides in the face of human and environmental contamination and the need for greater attention to the health of the population.³²

In addition to the emergence of diseases, the participants highlighted other harms associated with the use of pesticides. In this sense, they pointed out damages related to the environment in general, such as contamination of water, trees and food, according to statements that follow.

"[...] In nature too. The water, the animals drink the water, the rain comes, washes those plantations, the water goes to the rivers, where there is the fish. I've seen fish dying because the tractor was washed at the river's edge. He also has the cattle, they drink the waters, everything harms. And the grass too." (F7)

"[...] Because at home they say that it is because of the agrochemicals that the fruits don't grow properly. It gets kind of burnt sometimes." (F1)

"[...] It affects everything. It kills, pollutes, and often neighbors throw bottles into rivers. We also find everything." (F2)

"[...] Even the leaves of the trees stay... dry... burned... I imagine the air [...]" (F4)

The above perceptions refer to environmental problems arising from the use of pesticides. Nowadays, it is known that the use of these products affects the soil and the water, since part of the pesticides is taken by the rains to the rivers, which become contaminated. This leads to the mortality of animals like fish. Another factor that contributes to this mortality is the pollution caused by the washing of spraying equipment in streams rivers and lagoons.³³ Therefore, pesticides constitute one of the main current sources of risk to health and the environment, becoming a serious public health and environmental problem.^{28, 34}

In view of these statements, two aspects can be listed: the first one related to environmental interactions, and the second to inappropriate handling of agrochemical packaging. Environmental interactions can be perceived to the extent that participants recognize, for example, water contamination. The water used can be a source of contamination for the farmers, and the contamination of the pesticides can be reached through the air through spraying.¹¹

In this understanding, the consumption of these products with high concentration of pesticides can cause diseases such as cancer, kidney diseases, stomach, skin and eye diseases irritations and problems related to the central nervous system.³⁵ Given this scenario, it is evident that it is not only farmers in their activities that are exposed to pesticides, but the entire population due to factors such as contamination of natural resources and food.²⁸

With regard to the handling of pesticide packaging, the practice of improper reuse or disposal has become common among farmers.³³ This practice has become worrisome in that improper handling and disposal of them can cause soil contamination.²⁸

CONCLUSION

The findings of the present study revealed that the child's illness reflects strongly in the family routine, as families experience a new routine, permeated by diverse feelings, among which are: fear and hope. In addition, during the treatment, the family faces adversities, such as distancing from other family members, withdrawal from daily work activities and economic difficulties.

Regarding the use of agrochemicals, the results showed that the perceptions refer to the use of pesticides as dangerous but necessary, being recognized as the only way to achieve agricultural production. Furthermore, it has been demonstrated that there is a recognition of environmental interactions and that the use of pesticides can contaminate the environment.

The implications of this study for nursing demonstrate the need of this professional to problematize this lived reality and to develop actions to promote health along with these families. These professionals, because they have more direct contact with the community, are able to modify the social reality, whose credibility rests with society's confidence about its role. Thus, it is hoped to contribute to the discussion on health issues, including this subject with discussion in the training and practice of nurses, since they play a fundamental role in the community.

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Author responsible for correspondence:

Silviamar Camponogara
Centro de Ciências da Saúde, UFSM - prédio 26
Departamento de Enfermagem
Av. Roraima nº 1000
Bairro Camobi. Santa Maria/RS
ZIP-code: 97105-900